

APPENDIX E

ENVIRONMENTAL PROTECTION MEASURES AND BEST MANAGEMENT PRACTICES

In addition to the requirements and conditions stated in the project permits, geothermal lease stipulations, and conditions of approval, the project proponents are committed to implementing the best management practices (BMPs) discussed below, as appropriate for each of the proposed actions. These measures have been divided into the following categories: General Measures, Air Quality, Soil/Erosion Control, Blasting, Water Resources, Noxious Weeds, Vegetation, Wildlife and Sensitive Species, Cultural and Paleontological Resources, Noise, Visual Resources, and Public Health and Safety.

General Measures

1. Prior to construction, the limits of the temporary construction ROW would be recorded using a global positioning system unit.
2. The operator would obtain agency authorization prior to borrowing soil or rock material from agency lands.
3. Prior to construction, all construction personnel would be instructed on the protection of sensitive biological, cultural, and paleontological resources that have the potential to occur on site.
4. Construction in residential areas would be limited to between daylight and dusk seven days a week.
5. All construction vehicle movement would be restricted to the ROW, pre-designated access roads, and public roads.
6. Fences and gates, if damaged or destroyed by construction activities, would be repaired or replaced to their original preconstruction condition as required by the landowner or land-management agency.
7. Temporary gates would be installed only with prior permission of the landowner or land management agency.
8. All existing roads would be left in a condition equal to or better than their preconstruction condition.
9. All vehicle traffic associated with the projects would be restricted to designated access roads.

10. Where possible, new access roads would be located to follow natural contours and minimize side hill cuts and fills. Excessive grades on roads, road embankments, ditches, and drainages would be avoided, especially in areas with erodible soils.
11. New roads would be designed so that changes to surface water runoff are minimized and new erosion is not initiated.
12. New access roads would be located to minimize stream crossings. All structures crossing streams would be located and constructed so that they do not decrease channel stability or increase water velocity. Operators would obtain all applicable federal and state water crossing permits.
13. New roads would be located away from drainage bottoms and avoid wetlands, if practicable.
14. Road use would be restricted during the wet season if road surfacing is not adequate to prevent soil displacement, rutting, etc., and resultant stream sedimentation.
15. Access roads and on-site roads would be surfaced with aggregate materials, where necessary, to provide a stable road surface, support anticipated traffic, reduce fugitive dust, and prevent erosion.
16. Non-specular conductors would be installed on transmission lines to reduce visual impacts. Speed limits of 25 miles per hour would be observed on all unpaved roads in each project area in order to minimize dust and avoid collision with and incidental death of local wildlife.
17. Pipelines constructed above ground due to thermal gradient induced expansion and contraction would rest on cradles above ground level, allowing small animals to pass underneath.

Air Quality

1. Construction and operation of the proposed developments would comply with all applicable federal and state air quality standards.
2. BMPs for dust control would be implemented during construction of the access roads, well pads, power plant sites, pipelines, and electrical interconnection lines.
3. Vulcan Power Company has obtained a Surface Area Disturbance (SAD) permit from the Nevada Division of Environmental Protection Bureau of Air Pollution Control and would use the following dust-control measures from the BMP section of that permit within the Vulcan Project Area:
 - Two water trucks would pre-water areas to be disturbed and apply water on disturbed areas and material storage piles on a regular basis.
 - Roads would be graveled and vehicle speeds limited to 25 miles per hour.

- Subcontractors would be informed of their responsibilities to control fugitive dust.
 - Construction equipment operators would be trained to recognize excessive fugitive dust generation and call for a water truck to spray water on the disturbed areas.
 - Construction contractors would use equipment that is maintained per manufacturer's specifications and meets all applicable US Environmental Protection Agency standards for criteria pollutants from diesel engines, including particulates.
4. The drilling contractor would use state-of-the-art drill rigs certified to meet current EPA standards for non-methane hydrocarbons, nitrogen oxides, and particulates.
 5. Fugitive emissions from any hydrocarbon working fluids (isopentane/pentane) would be minimized by utilizing the latest industry technology flanges, seals, vapor-recovery units, leak-detection system, and routine maintenance procedures.
 6. Sensors located around major equipment would continuously provide information regarding hydrocarbon levels to the control room and the annunciators. The annunciators would alert the plant operators when a certain level of hydrocarbon is detected by the sensors. This would enable quick response time to alleviate potential problems and would keep plant personnel safe while minimizing hydrocarbon emissions.
 7. Whenever maintenance needs to be performed on the turbine-generator equipment or the hydrocarbon system, the hydrocarbon would be recovered to prevent a release into the atmosphere by installing a system that would evacuate the hydrocarbon from the network of piping and equipment, sub-cool the vapor back into a liquid, and pump it back into the hydrocarbon storage tank.
 8. As part of the POD, SPPC or its contractor would prepare and implement a Dust Control Plan to minimize fugitive dust emissions generated from project construction activities. The Dust Control Plan would be submitted to the Churchill County Planning Department and would be prepared in accordance with the Nevada Division of Environmental Protection, Bureau of Air Pollution Control's SAD Permit. At a minimum, the Dust Control Plan would discuss:
 - Enforcement of dust control requirements;
 - Environmental training; and
 - Dust-control measures to be implemented during construction.
 9. As part of the POU/POD, the operator would prepare and submit to the agency an Equipment Emissions Mitigation Plan for managing diesel exhaust. An Equipment Emissions Mitigation Plan would identify actions to reduce

diesel particulate, carbon monoxide, hydrocarbons, and nitrogen oxides associated with construction and drilling activities. The Equipment Emissions Mitigation Plan would require that all drilling/construction-related engines are maintained and operated as follows:

- Are tuned to the engine manufacturer's specification in accordance with an appropriate time frame.
- Do not idle for more than five minutes (unless, in the case of certain drilling engines, it is necessary for the operating scope).
- Are not tampered with in order to increase engine horsepower.
- Include particulate traps, oxidation catalysts, and other suitable control devices on all drilling/construction equipment used at the project site.
- Use diesel fuel having a sulfur content of 15 parts per million or less, or other suitable alternative diesel fuel, unless such fuel cannot be reasonably procured in the market area.
- Include control devices to reduce air emissions. The determination of which equipment is suitable for control devices should be made by an independent Licensed Mechanical Engineer. Equipment suitable for control devices may include drilling equipment, work over and service rigs, mud pumps, generators, compressors, graders, bulldozers, and dump trucks.

Soil Disturbance

1. In areas where significant grading would be required, topsoil, where present, would be segregated, stockpiled, and stabilized until later reapplication.
2. Construction would be prohibited when the soil is too wet to adequately support construction equipment or would result in ruts of 4 inches or greater.
3. An approved Storm Water Pollution Prevention Plan (SWPPP) would be prepared as part of the POD and implemented to minimize erosion from the project construction worksites and contain sediment. The SWPPP would be prepared in accordance with the National Pollutant Disposal Elimination System General Construction Stormwater Permit. At a minimum, it would identify the existing drainage patterns of the construction work sites and ROW, nearby drainages and washes, potential pollutant sources other than sediment, and the BMPs that that would be implemented to minimize off-site erosion and sedimentation. The SWPPP would include maps of the project area with potential locations for appropriate BMPs. The SWPPP would be kept on site throughout the duration of construction. Measures identified in the SWPPP would be inspected on the ground at least once per week, as well as before and after rain events of 0.5-inch or more in a 24-hour period.

4. Compaction of the soils would be in accordance with the recommendations in the geotechnical report and the detailed civil design.
5. All disturbed lands not required for plant operations would be revegetated upon completion of construction.

Blasting (if required and approved)

1. At a minimum, all explosive storage facilities would be weather resistant, fire resistant, bullet resistant, and theft resistant.
2. Potential rockslide/landslide areas would be identified and avoided to the maximum extent possible, and a blasting geologist would be consulted prior to blasting in these areas.
3. Blasts would be designed to minimize ground vibrations that can cause slope instability and impacts to wells and/or springs.
4. Blasting within 500 feet of wells and/or springs would be avoided to the maximum extent possible.
5. Precautions would be taken to minimize or avoid damaging structures or utilities located within 150 feet of blasting operations. Precautions may include rippling the charge detonations further apart or reducing the amount of charge material that detonates simultaneously.
6. To prevent or minimize the amount of rock particles cast into the air following detonation, blasting mats would be used.
7. A signaling system would be used to alert individuals of an impending blast. The signaling system would include the following components:
 - A warning signal: five minutes prior to the blasting signal, a one-minute series of long audible signals would be sounded at the blast site.
 - A blasting signal: one minute prior to the blast, a series of short, audible signals would be sounded at the blast site.
 - An all-clear signal: a prolonged, audible signal would be sounded at the blast site following the post-blast inspection of the blast area.
8. To inform construction personnel of the signaling protocol, signs explaining the protocol would be posted at the staging areas and at other appropriate areas along the construction ROW.
9. The proponent and/or its contractor would perform pre- and post-blast inspections of existing structures that may sustain damage due to blasting operations.
10. If any damage to structures occurs due to blasting operations, the proponent and/or its contractor would repair the damage as quickly as possible after becoming aware of the damage. In the event of damage to any water supply systems, the proponent and/or its contractor would provide

an alternative water source until the original water supply system is restored.

Water Resources

1. In coordination with State regulatory agencies the operator would comply with all State and Federal surface and ground water rules and regulations for all phases of development and reclamation.
2. All construction vehicle and equipment staging or storage would be located at least 100 feet away from any streams, wetlands, and other water features.
3. Freshwater-bearing and other usable water aquifers would be protected from contamination by assuring all well casing (excluding the liner) is required to be cemented from the casing shoe (below the lowest groundwater aquifer) to the surface.
4. Site drainage, including the plant finish grade, ditches, swales, and other drainage features, would be designed to meet local weather conditions and the mean average rainfall. The drainage would be designed to ensure that there would be no stormwater runoff that would adversely affect nearby surface waters (e.g., wetlands, canals). The design would also incorporate containment for oil-filled equipment where required. This would allow runoff from the oil-filled equipment to be inspected to avoid contaminated discharge to a pond or local drainage.
5. Appropriate oil separation and disposal measures would be taken as required prior to release of runoff to the surface drainage.
6. Operators would develop a storm water management plan as part of the POU to ensure compliance with applicable regulations and prevent off-site migration of contaminated storm water or increased soil erosion.
7. Stormwater from the well pad would be directed to the reserve pit and contained on site.
8. The geothermal wells would be drilled using non-toxic drilling mud to prevent the loss of drilling fluids into the rock and the risk of contamination to any aquifers from the drilling fluid.
9. Reserve pits would be constructed at each Ormat well site for the containment and temporary storage of drilling mud, drill cuttings, geothermal fluid and storm water runoff from each constructed well pad. Because non-toxic drilling mud would be used, the reserve pits would not be lined. Additionally, the bentonite drilling muds discharged into the reserve pits would act as a liner, in the same way they prevent the loss of drilling fluids in the well bore into the rock. Therefore, contamination of the local ground water aquifers as a result of the temporary discharges into the reserve pits would be unlikely.
10. Culverts would be strategically placed to allow for the natural drainage in any disturbed areas in the project area to be maintained.

11. The well pads would be set back at least 100 feet from the boundary of the Carson Lake and Pasture and would have berms that would prevent spills from draining west to the wildlife refuge.
12. Operators would avoid creating hydrologic conduits between discrete aquifers during foundation excavation and other activities.

Noxious Weeds

1. Prior to preconstruction activities, project personnel would identify all noxious weeds present on the land to be included in the ROW grant and provide this information to the BLM. BLM would then determine any noxious weeds that require flagging for treatment. The proponent would treat the noxious weeds as identified under the Weed Management Plan component of the POD, as required by the BLM.
2. All gravel and/or fill material would be certified as weed-free.
3. All off-road equipment would be cleaned (power or high-pressure cleaning) of all mud, dirt, and plant parts prior to initially moving equipment onto public land. Equipment would be cleaned again prior to reentry if it leaves the project site.

Vegetation

1. Wherever possible, vegetation would be left in place. Where vegetation must be removed, it would be cut at ground level to preserve the root structure and allow for potential resprouting.
2. All temporary construction areas that have been disturbed, including stringing sites and transmission structure work areas, would be recontoured and restored as required by the landowner or land-management agency. The method of restoration typically would consist of seeding or revegetating with native plants (if required), installing cross drains for erosion control, and placing water bars in the road or centerline travel route. Seed used for revegetation would be certified as weed-free.

Wildlife and Sensitive Species

1. If land-clearing activities are conducted during the avian breeding season (March 15 to July 15), nesting bird surveys would be conducted to identify nests and evidence of breeding birds.
2. Excavations left open overnight would be covered or fenced securely to prevent wildlife from falling into open excavations.
3. Structures would be constructed to conform to those practices described in the Suggested Practices for Avian Protection on Power Lines (APLIC 2006).
4. Any toxic or hazardous material or any other items that present a risk to wildlife would be fenced, netted or include some other measure to exclude wildlife.

Livestock Grazing

1. The operator would coordinate with livestock operators during the life of the project to minimize impacts to livestock operations.

Cultural and Paleontological Resources

1. A Class III cultural resource inventory would be conducted prior to construction. Unevaluated cultural sites would be tested to determine their eligibility status. Wherever possible, the proponent would avoid cultural sites identified as eligible for inclusion on the National Register of Historic Places. Where avoidance is not possible, a treatment plan would be developed through consultation between the BLM, State Historic Preservation Office (SHPO), and applicable tribes.
2. Prior to construction, the proponent and/or its contractors would train workers and individuals involved with the project regarding the potential to encounter historic or prehistoric sites and objects, proper procedures in the event that cultural items or human remains are encountered, prohibitions on artifact collection, and respect for Native American religious concerns. As part of this training, all construction personnel would be instructed to inspect for paleontological and cultural objects when excavating or conducting other ground-disturbing activities.
3. If potential resources are found, work would be halted immediately within a minimum distance of 300 feet from the discovery, and a professional archaeologist (holding a valid Cultural Resources Permit from Nevada BLM) would be mobilized to the site to evaluate the find. Any potential resources would not be handled or moved. The professional archaeologist would then determine whether the find needs to be evaluated by a paleontologist or Native American representative. The appropriate specialist(s) would then make a recommendation of the significance of the find and the steps to be followed before proceeding with the activity. Any cultural and/or paleontological resource discovered during construction on public or federal land would be reported immediately to the BLM. Work would not continue until the BLM issues a notice to proceed. The BLM would notify and consult with SHPO and appropriate tribes on eligibility and suitable treatment options. If significant resources are discovered, they would be recovered, transported, and stored at an approved curation facility that meets the standards specified in Title 36 of the Code of Federal Regulations (CFR) Part 79.
4. If human remains are encountered during project construction, all work within 300 feet of the remains would cease, and the remains would be protected. If the remains are on land managed by the BLM, BLM representatives would be immediately notified. If the remains are Native American, the BLM would follow the procedures set forth in 43 CFR Part 10, Native American Graves Protection and Repatriation Regulations. If the remains are located on state or private lands, the Nevada SHPO and the BLM would be notified immediately. Native American human remains

discovered on state or private lands would be treated under the provisions of the Protection of Indian Burial Sites section of the Nevada Revised Statutes Chapter 383. The Nevada SHPO would consult with the Nevada Indian Commission and notify the appropriate Native American tribe. Procedures for inadvertent discovery are listed under Nevada Revised Statutes 383.170.

Noise

1. Noise mufflers would be used on all drill rig and air compressor engines. Each well pad may have one rock muffler. Rock mufflers are approximately 30 feet tall with a diameter of about 10 feet and are used to separate and attenuate steam venting noise during well testing.
2. Ormat employs proprietary turbine designs having rotation speeds matching generator output rotations per minute. This process eliminates the need for gear reduction units and the resulting associated noise. As a result the facilities operate at approximately 65dbA at 200 feet. Ormat would also employ the best available noise control technology on cooling tower fans.

Visual Resources

1. The operator would incorporate visual design considerations into the planning and design of the project to minimize potential visual impacts of the proposal and to meet the Visual Resource Management objectives of the area and the agency.
2. Structures would be constructed with low profiles whenever possible to reduce structure visibility.
3. Materials and surface treatments would be selected and designed to repeat or blend with landscape elements.
4. Placement of facilities on ridgelines, summits, or other locations would be avoided in order to prevent the buildings from being silhouetted against the sky from important viewing locations;
5. Facilities would be collocated to the extent possible to use existing and shared rights-of-way, existing and shared access and maintenance roads, and other infrastructure in order to reduce visual impacts. Facilities would not bisect ridge tops or run down the center of valley bottoms.
6. Site linear features (aboveground pipelines, rights-of-way, and roads) would follow natural land contours rather than straight lines (particularly up slopes) when possible. Fall-line cuts should be avoided.
7. Site facilities, especially linear facilities, would take advantage of natural topographic breaks (i.e., pronounced changes in slope) to avoid siting facilities on steep side slopes.
8. Where available, site linear features such as rights-of-way and roads would follow the edges of clearings (where they would be less conspicuous) rather than passing through the centers of clearings.

9. Site facilities would take advantage of existing clearings to reduce vegetation clearing and ground disturbance, where possible.
10. Site linear features (e.g., trails, roads, rivers) would cross other linear features at right angles whenever possible to minimize viewing area and duration.
11. Site and design structures and roads would minimize and balance cuts and fills and to preserve existing rocks, vegetation, and drainage patterns to the maximum extent possible.
12. All buildings, insulation jacketing, and visible structures would be painted according to the BLM “Standard Environmental Colors Chart” designations for facilities on BLM lands in order to minimize the visual impacts in the area.
13. Non-reflective or low-reflectivity materials, coatings, or paints would be used whenever possible.
14. Grouped structures would be painted the same color to reduce visual complexity and color contrast.
15. Efficient facility lighting would be designed and installed so that the minimum amount of lighting required for safety and security is provided but not exceeded and so that upward light scattering (light pollution) is minimized. This may include, for example, installing shrouds to minimize light from straying off-site, properly directing light to only illuminate necessary areas, and installing motion sensors to only illuminate areas when necessary.
16. Construction staging areas and laydown areas would be sited outside of the viewsheds of publically accessible vantage points and visually sensitive areas where possible, including siting in swales, around bends, and behind ridges and vegetative screens.
17. Visual impact mitigation objectives and activities would be discussed with equipment operators prior to commencement of construction activities.
18. Slash from vegetation removal would be mulched or scattered and spread to cover fresh soil disturbances, or, if not possible, buried or composted.
19. If slash piles are necessary, piles would be staged out of sight of sensitive viewing areas.
20. Installing gravel and pavement would be avoided where possible to reduce color and texture contrasts with existing landscape.
21. Excess fill would be used to fill uphill-side swales resulting from road construction in order to reduce unnatural-appearing slope interruption and to reduce fill piles.
22. Downslope wasting of excess fill material would be avoided.

23. Road-cut slopes would be rounded and cut and fill pitch would be varied to reduce contrasts in form and line. Slopes would be varied to preserve specimen trees and nonhazardous rock outcroppings.
24. Planting pockets would be left on slopes where feasible.
25. Where required, areas would be revegetated with native vegetation establishing a composition consistent with the form, line, color, and texture of the surrounding undisturbed landscape.
26. Benches would be provided in rock cuts to accent natural strata.
27. Split-face rock blasting would be used to minimize unnatural form and texture resulting from blasting.
28. Topsoil would be segregated from cut and fill activities and spread on freshly disturbed areas to reduce color contrast and to aid rapid revegetation.
29. Signage would be minimized and reverse sides of signs and mounts painted or coated to reduce color contrast with existing landscape.
30. Trash burning would be prohibited; trash would be stored in containers to be hauled off-site for disposal.
31. Interim restoration would be undertaken as soon as possible after disturbances during the operating life of the project. During road maintenance activities, blading would avoid existing forbs and grasses in ditches and along roads.
32. Cut slopes would be randomly scarified to reduce texture contrast with existing landscape and to aid in revegetation.
33. Disturbed areas would be covered with stockpiled topsoil or mulch, and revegetated with a mix of native species selected for visual compatibility with existing vegetation.
34. Rocks, brush, and natural debris would be restored whenever possible to approximate preexisting visual conditions.

Health and Safety

1. All potential spark-emitting equipment would be fitted with spark arresters.
2. Trash and other non-hazardous solid waste would be collected and stored on site and periodically disposed of at an off-site disposal facility authorized to accept waste.
3. Blowout prevention equipment would be utilized while drilling below the surface casing to ensure that any geothermal fluids encountered do not flow uncontrolled to the surface. The blowout prevention equipment would be installed on the well head, which is welded to the casing, and kept in operating condition and tested in compliance with federal regulations and industry standards.

4. A spill and disposal contingency plan would be developed within the POD, which would describe the methods for cleanup and abatement of any petroleum hydrocarbon or other hazardous material spill.
5. A health and safety program would be developed as part of the POU to protect both workers and the general public during construction and operation of geothermal projects.
6. Regarding occupational health and safety, the program would identify all applicable federal and state occupational safety standards; establish safe work practices for each task (e.g., requirements for personal protective equipment and safety harnesses, Occupational Safety and Health Administration standard practices for safe use of explosives and blasting agents, and measures for reducing occupational electric and magnetic fields exposures); establish fire safety evacuation procedures; and define safety performance standards (e.g., electrical system standards and lightning protection standards). The program would include a training program to identify hazard training requirements for workers for each task and establish procedures for providing required training to all workers. Documentation of training and a mechanism for reporting serious accidents to appropriate agencies would be established.
7. Access to the drill pads and reserve pit would be limited to authorized personnel, and appropriate safety and warning signs would be posted at each pad site and entrance road.
8. Drill cuttings may be used at the discretion of the surface manager, in this case BLM, as fill material for projects such as road repair and pad construction. Before use of the cuttings for construction, the cuttings from test wells would be tested by a certified lab for hazardous wastes. Using the federally mandated toxicity characteristics and leaching profile testing methods, each sample would be tested for heavy metals and volatile and semi-volatile organic properties. These results would be provided to the BLM upon the request for authorization of use of cuttings in construction.
9. All machinery, drilling platforms, and oil and fuel storage areas on the drill pads would have secondary containment up to 110 percent of volume and, as a secondary precaution, would drain to the reserve pit.
10. Over the operational life of the project, accidental discharges of geothermal fluids, which could contaminate surface or ground waters, are unlikely because of frequent inspections and ultrasonic testing of the geothermal pipelines, pipeline flow and pressure monitoring, and well pump and pipeline valve shutdown features.
11. Portable sanitary facilities and potable water would be provided at the drill sites and maintained in accordance with applicable health standards.
12. Emergency showers and eyewash stations would be located in areas where chemical irritants would be used as required by code.

13. Outside emergency showers/eyewash stations would be provided with freeze/summer high temperature protection, as appropriate.
14. Well pad sites would be surrounded by a berm to contain accidental spills and runoff on-site and would be sloped to drain into collection ditches, which in turn would drain into the on-site reserve pit.
15. Power plant sites would be sloped and graded with a drainage system to collect all runoff.
16. Liquids would be stored in the reserve pit until the liquid evaporates, is pumped out and injected back into the wells, or is disposed of in accordance with BLM and Nevada regulations. Should drainage swales be encountered, they would be diverted around the site or otherwise handled in accordance with BLM and other applicable regulations.
17. Each power plant site would be fenced.
18. Perimeter and switchyard fencing would be properly grounded to provide personnel protection. All fence fabric, posts, barbed wire, hardware, and gates would be galvanized.
19. Permanent sensors for detecting hydrocarbon leakage would be located in areas of potential leakage, such as near the hydrocarbon storage tanks, turbines, and hydrocarbon pumps. They can be responded to manually or interlocked with the fire protection system to provide automatic response.
20. All construction vehicles would be maintained in accordance with the manufacturers' recommendations. All vehicles would be inspected for leaks prior to entering the job site. All discovered leaks would be contained with a bucket or absorbent materials until repairs can be made.
21. All hazardous waste materials would be properly labeled in accordance with 40 CFR Part 262. A list of hazardous materials expected to be used during project construction is presented in **Table E-1**, Hazardous Materials Proposed for Project Use.

Table E-1
Hazardous Materials Proposed for Project Use

Hazardous Materials	
2-Cycle Oil	Lubricating Grease
ABC dry Chemical Fire Extinguisher	Mastic Coating
Acetylene Gas	Methyl Alcohol
Air Tool Oil	North Wasp and Hornet Spray (1,1,1-Trichloroethane)
Ammonium Hydroxide	Oxygen
Antifreeze	Paint

**Table E-1
Hazardous Materials Proposed for Project Use**

Hazardous Materials	
Automatic Transmission Fluid	Paint Thinner
Battery Acid	Petroleum Products
Bee Bop Insect Killer	Prestone II Antifreeze
Canned Spray Paint	Puncture Seal Tire Inflator
Chain Lubricant (Methylene Chloride)	Safety Fuses
Connector Grease	Safety Solvent
Contact Cleaner 2000	Starter Fluid
Eye Glass Cleaner (Methylene Chloride)	Trichloroethane
Gas Treatment	Wagner Brake Fluid
Gasoline	WD-40
Insulating Oil	

22. Hazardous material storage, equipment refueling, and equipment repair would be conducted at least 100 feet from streams or other water features to the maximum extent feasible. If these activities must be conducted within 100 feet of streams or other water features, secondary containment would be used to protect these water features.
23. Spilled material of any type would be cleaned up immediately. A shovel and spill kit would be maintained on site at all times to respond to spills.
24. All sanitary wastes would be collected in portable, self-contained toilets at all construction staging areas and other construction operation areas and managed in accordance with local requirements.
25. The proponent would designate a Fire Marshall (Project Fire Marshall) who would coordinate with a Fire Marshall to be designated by the prime contractor (Contractor Fire Marshall) and the BLM's fire-management representative, as necessary.
26. The Contractor Fire Marshall would be responsible for the following tasks:
 - Conducting regular inspections of tools, equipment, and first aid kits for completeness.
 - Conducting regular inspections of storage areas and practices for handling flammable fuels to confirm compliance with applicable laws and regulations.
 - Posting smoking and fire rules at centrally visible locations on site.

- Coordinating initial response to contractor-caused fires within the project area.
 - Conducting fire inspections along the ROW and access roads.
 - Ensuring that all construction workers and subcontractors are aware of all fire protection measures.
 - Remaining on duty and on site when construction activities are in progress and during any additional periods when fire safety is an issue, or designating another individual to serve in this capacity when absent.
 - Reporting all wildfires in accordance with the notification procedures described below.
 - Initiating and implementing fire-suppression activities until relieved by agency or local firefighting services in the event of a project-related fire. Project fire suppression personnel and equipment, including water tenders, would be dispatched within 15 minutes from when a fire is reported.
 - Coordinating with the Project Manager regarding current fire conditions potential and fire safety warnings from the BLM and communicating these to the contractor's crews.
27. The Construction Foreman or Contractor Fire Marshal would immediately notify firefighting services of any fires on site.
 28. Contractors would be notified to stop or reduce construction activities that pose a significant fire hazard until appropriate safeguards are taken.
 29. If an accidental fire occurs during construction, immediate steps to extinguish the fire, if it is manageable and safe to do so, would be taken using available fire suppression equipment and techniques. Fire-suppression activities would be initiated by the proponent and/or its contractor until relieved by agency or local firefighting services.
 30. Smoking would only be permitted in designated cleared areas and would be prohibited while walking or working in areas with vegetation or while operating equipment. In areas where smoking is permitted, all burning tobacco and matches would be completely extinguished and discarded in ash trays, not on the ground.
 31. "No smoking" signs and fire rules would be posted at construction staging areas, helicopter fly yards, and key construction sites during the fire season.
 32. Fire-suppression equipment would be present in areas where construction tools or equipment have the potential to spark a fire.
 33. Extra precautions would be taken when fire danger is considered to be high.
 34. All field personnel would be instructed regarding emergency fire response. The contractors would receive training on the following:

- Initial fire-suppression techniques;
 - Fire event reporting requirements;
 - Methods to determine if a fire is manageable;
 - Fire-control measures to be implemented by field crews on site;
 - When the worksite should be evacuated;
 - How to respond to wildfires in the vicinity; and
 - How to maintain knowledge of and plans for evacuation routes.
35. All flammable material, including dead vegetation, dry grasses, and snags (fallen or standing dead trees) would be cleared for a minimum of 10 feet from areas of equipment operation that may generate sparks or flames.
36. No open burning, campfires, or barbeques would be allowed along the ROW, at construction staging areas, at substations, on access roads, or in any other project-related construction areas.
37. All welding or cutting of power line structures or their component parts would be approved by the Construction Foreman. Approved welding or cutting activities would only be performed in areas cleared of vegetation a minimum of 10 feet around the area. Welding or cutting activities would cease one hour before all fire-response personnel leave a construction area to reduce the possibility of welding activities smoldering and starting a fire. Welder vehicles would be equipped with fire-suppression equipment.
38. All internal combustion engines, both stationary and mobile, would be equipped with approved spark arresters that have been maintained in good working condition. Light trucks and cars with factory-installed mufflers in good condition may be used on roads cleared of all vegetation with no additional equipment required. Vehicles equipped with catalytic converters are potential fire hazards and would be parked on cleared areas only.
39. The use of torches, fuses, highway flares, or other warning devices with open flames would be prohibited. The proponent and its contractors would only use electric or battery-operated warning devices on site.
40. Equipment parking areas, small stationary engine sites, and gas and oil storage areas would be cleared of all extraneous flammable materials. "No smoking" signs would be posted in these areas at all times.
41. All fuel tanks would be grounded.
42. The proponent and the contractors would provide continuous access to roads for emergency vehicles during construction.
43. All motorized vehicles and equipment would be equipped with the following fire-protection items:
- One long-handled round point shovel;
 - One ax or Pulaski fire tool;

- One five-pound ABC Dry Chemical Fire Extinguisher;
- One five-gallon water backpack (or other approved container) full of water or other extinguishing solution; and
- Hard hat, work gloves, and eye protection.

44. Project construction worksites would include the following equipment:

- Power saws, if required for construction, equipped with an approved spark arrester and accompanied by one five-pound ABC Dry Chemical Fire Extinguisher and a long-handled, round-point shovel when used away from a vehicle.
- Fuel service trucks with one 35-pound capacity fire extinguisher charged with the necessary chemicals to control electrical and fuel fires. At least two long-handled, round-point shovels and two five-pound ABC Dry Chemical Fire Extinguishers at wood-cutting, welding, or other construction work sites that have a high risk of starting fires.
- At least one radio and/or cellular telephone to contact fire-suppression agencies or the project management team.
- Back pumps filled with water (two at each wood-cutting site, one at each welding site, and two at each tower installation or construction site, or any activity site at risk of igniting fires).

45. During periods of increased fire danger, a fire-suppression vehicle would be available in the construction area or stationed near high-risk construction work sites and would be equipped with the following items:

- One water tank with a minimum capacity of 500 gallons;
- 250 feet of 0.75-inch heavy-duty rubber hosing;
- One pump with a discharge capacity of at least 20 gallons per minute (the pump would have fuel capacity to operate for at least a 2-hour period); and
- One tool cache (for fire use only) containing at a minimum: two long-handled round point shovels; two axes or Pulaski fire tools; and one chainsaw of 3.5 (or more) horsepower with a cutting bar of at least 20 inches in length.

46. The government may require emergency measures, including the necessary shutting down of equipment or portions of operations during periods of high fire danger.

47. If a fire is unmanageable, field crews would evacuate and call “911” or the Sierra Front Interagency Dispatch Center: 775-883-5353 (wildland fire emergency line).

48. The Contractor would report ALL wildland fires on or in the vicinity of the project to the Sierra Front Interagency Dispatch Center (SFIDC). When reporting a fire, provide the following information: name, callback telephone number, project name, location, and fire description. The emergency phone number for SFIDC dispatch is 775-883-5353.
49. The fire protection system at each constructed plant site would consist of a 300,000-gallon water storage tank, two 100-percent diesel pumps, a water-distribution piping system, control panel, automatic valves, instrumentation, and hydrants. In addition, handheld fire extinguishers would be located in key areas throughout the plant.
50. Infrared flame detection sensors would be strategically located adjacent to major equipment and hydrocarbon storage tanks. When a flame is detected, a signal is transmitted to the fire protection control panel, which opens a valve, and the zone where the flame was detected is deluged until the valve is manually shut off. In the outdoor area, the fire water system would be tied into the leak detection and annunciator systems.
51. A separate waterless fire suppression system would be installed in the control building. This product would not damage motor control center and electrical equipment, yet is safe to use in the control room where personnel would be located.
52. Current wildland fire information can be found on line at the Sierra Front Interagency Dispatch Center's (SFIDC) websites, <http://www.sierrafront.net/> under the Intelligence link. This site will provide current and expected weather conditions, posting of Red Flan watches and warnings as well as areas of current fire activity.
53. Under Title 43 CFR 9212, the holder of this permit may be held liable for any and all costs, should a wildland fire occur caused by the activities associated with the construction, maintenance, or operation of this project. Fire trespass action might be initiated and wildfires suppression costs may be collected from the holder of this permit.